Federal Aviation Administration – Regulations and Policies
Aviation Rulemaking Advisory Committee

Transport Airplane and Engine Issue Area
Powerplant Installation Harmonization Working Group

Task 14 – Reverse Thrust and Propeller Pitch

Task Assignment

exemption is necessary or appropriate in the public interest and consistent with the protection of investors and the purposes fairly intended by the policies and provisions of the Act. OLDE Management states that the requested relief satisfies this standard.

4. OLDE Management asserts that the Transaction arose out of business considerations unrelated to the Trust and OLDE Management. OLDE Management states that there is insufficient time to obtain shareholder approval of the New Agreements prior to the Closing Date.

5. OLDE Management represents that under the New Agreements, during the Interim Period, the scope and quality of services provided to the Funds will be at least equivalent to the scope and quality of the services it previously provided under the Existing Agreements. OLDE Management states that if any material change in its personnel occurs during the Interim Period, OLDE Management will apprise and consult with the Board to ensure that the Board, including a majority of the Independent Trustees, are satisfied that the scope and quality of the advisory services provided to the Funds will not be diminished. OLDE Management also states that the compensation payable to it under the New Agreements will be no greater than the compensation that would have been paid to OLDE Management under the Existing Agreements.

Applicant's Conditions

OLDE Management agrees as conditions to the issuance of the exemptive order requested by the application that:

1. The New Agreements will have the same terms and conditions as the Existing Agreements except for the dates of execution and termination.

2. Fees earned by OLDE Management in respect of the New Agreements during the Interim Period will be maintained in an interest-bearing escrow account, and amounts in the account (including interest earned on such fees) will be paid to (i) OLDE Management in accordance with the New Agreements, after the requisite shareholder approvals are obtained, or (ii) the respective Fund, in absence of such shareholder approval.

3. The Trust will convene a meeting of shareholders of each Fund to vote on approval of the respective New Agreements during the Interim Period (but in no event later than April 15, 2000).

4. OLDE Management or an affiliate, not the Funds, will bear the costs of preparing and filing the application and the costs relating to the solicitation of shareholder approval of the Funds necessitated by the Transaction.

5. OLDE Management will take all appropriate steps so that the scope and quality of advisory and other services provided to the Funds during the Interim Period will be at least equivalent, in the judgment of the Trust's Board, including a majority of the Independent Trustees, to the scope and quality of services previously provided under the Existing Agreements. If personnel providing material services during the Interim Period change materially, OLDE Management will apprise and consult with the Board to assure that the trustees, including a majority of the Independent Trustees, of the Trust are satisfied that the services provided will not be diminished in scope or quality.

For the SEC, by the Division of Investment Management, under delegated authority.

Margaret H. McFarland,

Deputy Secretary.

[FR Doc. 99–30709 Filed 11–24–99; 8:45 am]

BILLING CODE 8010–01–M

SECURITIES AND EXCHANGE COMMISSION

SUNSHINE ACT MEETING

AGENCY MEETING: Notice is hereby given, pursuant to the provisions of the Government in the Sunshine Act, Pub. L. 94–409, that the Securities and Exchange Commission will hold the following meeting during the week of November 29, 1999.

A closed meeting will be held on Wednesday, December 1, 1999, at 11:00 a.m.

Commissioners, Counsel to the Commissioners, the Secretary to the Commission, and recording secretaries will attend the closed meeting. Certain staff members who have an interest in the matters may also be present.

The General Counsel of the Commission, or his designee, has certified that, in his opinion, one or more of the exemptions set forth in 5 U.S.C. 552b(c) (4), (8), (9)(A) and (10) and 17 CFR 200.402(a) (4), (8), (9)(A) and (10), permit consideration for the scheduled matters at the closed meeting.

Commissioner Unger, as duty officer, voted to consider the items listed for the closed meeting in a closed session.

The subject matter of the closed meeting scheduled for Wednesday, December 1, 1999, will be:

Institution and settlement of injunctive actions

Institution and settlement of administrative proceedings of an enforcement nature

At times, changes in Commission priorities require alterations in the scheduling of meeting items. For further information and to ascertain what, if any, matters have been added, deleted or postponed, please contact:

The Office of the Secretary at (202) 942–7070.

Dated: November 23, 1999.

Jonathan G. Katz,

Secretary.

[FR Doc. 99–30918 Filed 11–23–99; 2:54 pm]

BILLING CODE 8010–01–M

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Aviation Rulemaking Advisory Committee; Transport Airplane and Engine Issues—New and Revised Tasks

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of new and revised task assignments for the Aviation Rulemaking Advisory Committee (ARAC).

SUMMARY: Notice is given of new tasks assigned to and accepted by the Aviation Rulemaking Advisory Committee (ARAC) and of revisions to a number of existing tasks. This notice informs the public of the activities of ARAC.

FOR FURTHER INFORMATION CONTACT: Dorenda Baker, Transport Airplane Directorate, Aircraft Certification Service (ANM–110), 1601 Lind Avenue, SW., Renton, WA 98055; phone (425) 227–2109; fax (425) 227–1320.

SUPPLEMENTARY INFORMATION:

Background

The FAA has established an Aviation Rulemaking Advisory Committee to provide advice and recommendations to the FAA Administrator, through the Associate Administrator for Regulation and Certification, on the full range of the FAA's rulemaking activities with respect to aviation-related issues. This includes obtaining advice and recommendations on the FAA's commitment to harmonize its Federal Aviation Regulations (FAR) and practices with its trading partners in Europe and Canada.

One area ARAC deals with is transport airplane and engine issues. These issues involve the airworthiness standards for transport category

airplanes and engines in 14 CFR parts 25, 33, and 35 and parallel provisions in 14 CFR parts 121 and 135. The corresponding Canadian standards are contained in Parts V, VI, and VII of the Canadian Aviation Regulations. The corresponding European standards are contained in Joint Aviation Requirements (JAR) 25, JAR–E, JAR–P, JAR–OPS–Part 1, and JAR–26.

As proposed by the U.S. and European aviation industry, and as agreed between the Federal Aviation Administration (FAA) and the European Joint Aviation Authorities (JAA), an accelerated process to reach harmonization has been adopted. This process is based on two procedures:

(1) Accepting the more stringent of the regulations in Title 14 of the Code of Federal Regulations (FAR), Part 25, and the Joint Airworthiness Requirements (JAR); and

(2) Assigning approximately 41 already-tasked significant regulatory differences (SRD), and certain additional part 25 regulatory differences, to one of three categories:

- Category 1—Envelope
- Category 2—Completed or near complete
- Category 3—Harmonize

The Revised Tasks

ARAC will review the rules identified in the "FAR/JAR 25 Differences List," dated June 30, 1999, and identify changes to the regulations necessary to harmonize part 25 and JAR 25. ARAC will submit a technical report on each rule. Each report will include the cost information that has been requested by the FAA. The tasks currently underway in ARAC to harmonize the listed rules are superseded by this tasking.

New Tasks

The FAA has submitted a number of new tasks for the Aviation Rulemaking Advisory Committee (ARAC), Transport Airplane and Engine Issues. As agreed by ARAC, these tasks will be accomplished by existing harmonization working groups. The tasks are regulatory differences identified in the above-referenced differences list as Rule type = P–SRD.

New Working Group

In addition to the above new tasks, a newly established Cabin Safety Harmonization Working Group will review several FAR/JAR paragraphs as follows:

ARAC will review the following rules and identify changes to the regulations necessary to harmonize part 25 and JAR:

(1) Section 25.787;
(2) Section 25.791(a) to (d);
(3) Section 25.810;
(4) Section 25.811;
(5) Section 25.819; and
(6) Section 25.813(c).

ARAC will submit a technical report on each rule. Each report will include the cost information that has been requested by the FAA.

The Cabin Safety Harmonization Working Group would be expected to complete its work for the first five items (identified as Category 1 or 2) before completing item 6 (identified as Category 3).

Schedule

Within 120 days of tasking/retasking:

- For Category 1 tasks, ARAC submits the Working Groups' technical reports to the FAA to initiate drafting of proposed rulemaking documents.
- For Category 2 tasks, ARAC submits technical reports, including already developed draft rules and/or advisory materials, to the FAA to complete legal review, economic analysis, coordination, and issuance.

June 2000: For Category 3 tasks, ARAC submits technical reports including draft rules and/or advisory materials to the FAA to complete legal review, economic analysis, coordination, and issuance.

ARAC Acceptance of Tasks

ARAC has accepted the new tasks and has chosen to assign all but one of them to existing harmonization working groups. A new Cabin Safety Harmonization Working Group will be formed to complete the remaining tasks. The working groups serve as staff to ARAC to assist ARAC in the analysis of the assigned tasks. Working group recommendations must be reviewed and approved by ARAC. If ARAC accepts a working group's recommendations, it forwards them to the FAA and ARAC recommendations.

Working Group Activity

All working groups are expected to comply with the procedures adopted by ARAC. As part of the procedures, the working groups are expected to accomplish the following:

1. Document their decisions and discuss areas of disagreement, including options, in a report. A report can be used both for the enveloping and for the harmonization processes.

2. If requested by the FAA, provide support for disposition of the comments received in response to the NPRM or review the FAA's prepared disposition of comments. If support is requested, the Working Group will review comments/disposition and prepare a report documenting their recommendations, agreement, or disagreement. This report will be submitted by ARAC back to the FAA.

3. Provide a status report at each meeting of ARAC held to consider Transport Airplane and Engine Issues.

Partcipation in the Working Groups

Membership on existing working groups will remain the same, with the formation of subtask groups, if appropriate. The Cabin Safety Harmonization Working Group will be composed of technical experts having an interest in the assigned task. A working group member need not be a representative of a member of the full committee.

An individual who has expertise in the subject matter and wishes to become a member of the Cabin Safety Harmonization Working Group should write to the person listed under the caption **FOR FURTHER INFORMATION CONTACT** expressing that desire, describing his or her interest in the tasks, and stating the expertise he or she would bring to the working group. All requests to participate must be received no later than December 30, 1999. The requests will be reviewed by the assistant chair, the assistant executive director, and the working group chair, and the individuals will be advised whether or not the request can be accommodated.

Individuals chosen for membership on the Cabin Safety Harmonization Working Group will be expected to represent their aviation community segment and participate actively in the working group (e.g., attend all meetings, provide written comments when requested to do so, etc.). They also will be expected to devote the resources necessary to ensure the ability of the working group to meet any assigned deadline(s). Members are expected to keep their management chain advised of working group activities and decisions to ensure that the agreed technical solutions do not conflict with their sponsoring organization's position when the subject being negotiated is presented to ARAC for a vote.

Once the working group has begun deliberations, members will not be added or substituted without the approval of the assistant chair, the assistant executive director, and the working group chair.

The Secretary of Transportation has determined that the formation and use of ARAC are necessary and in the public interest in connection with the performance of duties imposed on the FAA by law.

Meetings of ARAC will be open to the public. Meetings of the working groups will not be open to the public, except to the extent that individuals with an interest and expertise are selected to participate. No public announcement of working group meetings will be made.

Issued in Washington, DC, on November 19, 1999.

Anthony F. Fazio,

Executive Director, Aviation Rulemaking Advisory Committee.

[FR Doc. 99–30774 Filed 11–24–99; 8:45 am]

BILLING CODE 4910–13–M

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

RIN 2120–AA64

General Aviation Summit; Notice of Public Meeting

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of public meeting.

SUMMARY: This notice announces a public meeting on the subject of the continued airworthiness of the U.S. general aviation fleet of aircraft. The purpose of the meeting is to gather information and discuss technical issues related to problems associated with the increasing average age of the general aviation fleet. Particular emphasis will be given to continued field support, service difficulty experiences and reporting, and inspection issues.

DATES: The public meeting will be held January 11–12, 2000, starting at 8:00 a.m. each day, in Kansas City, Missouri. Registration will begin at 8:00 a.m. on the first day of the meeting.

ADDRESSES: The public meeting will be held at the following location: The Adam's Mark Hotel, Grand Ballroom, 9103 East 39th Street, Kansas City, Missouri 64133.

Persons who are unable to attend the meeting may mail their comments to: Federal Aviation Administration, (FAA), Central Region, Small Airplane Directorate, Attention: Mr. Bill Timberlake, 901 Locust, Room 301, Kansas City, Missouri 64106. Written comments regarding the subject of this meeting will receive the same consideration as statements made at the public meeting.

FOR FURTHER INFORMATION CONTACT: Requests to present a statement at the public meeting and questions regarding the logistics of the meeting should be directed to FAA, Central Region, Small Airplane Directorate, Attention: Mr. Bill Timberlake, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329–4178; facsimile (816) 329–4091.

SUPPLEMENTARY INFORMATION:

Participation at the Public Meeting

Requests from persons who wish to present oral statements at the public meeting should be received by the FAA no later than 10 days prior to the meeting. Such requests should be submitted to Mr. Bill Timberlake as listed in the section titled **FOR FURTHER INFORMATION CONTACT** above, and should include a written summary of oral remarks to be presented, and an estimate of time needed for the presentation. Requests received after the date specified above will be scheduled if there is time available during the meeting; however, the names of those individuals may not appear on the written agenda. The FAA will prepare an agenda of speakers that will be available at the meeting. To accommodate as many speakers as possible, the amount of time allocated to each speaker may be less than the amount of time requested. Those persons desiring to have available audiovisual equipment should notify the FAA when requesting to be placed on the agenda.

Background

The average airplane in the general aviation fleet of the United States is approximately 34 years old. In the next 10 years, this average age is expected to rise to over 41 years old. By the year 2019, the average general aviation airplane will be almost 50 years old.

Certain type design airplanes may be subject to pending rulemaking, which would require the development of Structural Inspection Documents (SIDs), and a mandated structural inspection program. These actions, if adopted, would not commence for at least 5 years and may not be complete until the year 2010. This rulemaking would not affect airplanes utilized in accordance with Part 91 of the Federal Aviation Regulations (14 CFR part 91). The FAA has determined that as the general aviation fleet gets older, there is concern about ensuring the continued airworthiness of these airplanes.

In addition to these concerns, there are a large number of general aviation airplane manufacturers that have gone out of business or severely curtailed operations. The FAA is concerned about the less than optimum availability of resources to respond to any airworthiness problems on these airplanes. The FAA is aware that many of these "orphaned" airplanes are well supported by owner associations and spare parts manufacturers, but unfortunately, this support is not available in all cases.

The FAA has determined that it is in the public interest to hold a public meeting on this subject for the purpose of sharing information and gathering additional data. Accordingly, the FAA will conduct this public meeting in Kansas City, Missouri.

The FAA anticipates that the agency, industry, and the general public will use the public meeting as a forum to share information, resolve questions, and discuss potential solutions concerning the continued airworthiness of older general aviation airplanes.

Public Meeting Procedures

The following procedures have been established for this meeting:

1. Admission and participation in the public meeting is free. The meeting will be open to all persons who have requested in advance to present statements, or who register on the first day of the meeting (between 8:00 a.m. and 8:30 a.m.). Time availability for presentations and seating will be made according to the order of reservation.

2. Representatives from the FAA will conduct the public meeting. A technical panel of FAA personnel will discuss information presented by participants.

3. The public meeting is intended as a forum to share information and resolve questions concerning the continued airworthiness of older general aviation airplanes. Those sharing information will include industry, the general public, and operators of general aviation aircraft. Participants must limit their presentations to the issue.

4. All interested parties will have the opportunity to present any additional information not currently available to the FAA. The FAA will then have the opportunity to explain the methodology and technical assumptions supporting its current observations.

5. FAA personnel, industry, and public participants may engage in a full discussion of all technical material presented at the meeting. Anyone presenting conclusions will be expected to submit to the FAA data supporting those conclusions.

6. The FAA will try to accommodate all speakers. Time may be limited for each presentation.

7. Sign and oral interpretations will be made available at the meeting, including assistive listening devices, if requested 10 calendar days before the meeting.

8. The meeting (except for any breakout sessions) will be recorded by a court reporter. Any person who is interested in purchasing a copy of the

Recommendation Letter

400 Main Street
East Hartford, Connecticut 06108

Pratt & Whitney
A United Technologies Company

June 1, 2000

Department of Transportation
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

Attention: Mr. Anthony Fazio, ARM-1

Subject: ARAC Report Submittal

Reference: ARAC Tasking, Federal Register, November 19, 1999

Dear Tony,

In accordance with the reference tasking, the ARAC Transport Airplane and Engine Issues Group is pleased to submit the following "Fast Track" report as an ARAC recommendation.

25.1155 Reverse thrust and propeller pitch settings below the flight regime.

This report has been prepared by the Powerplant Installation Harmonization Working Group of TAEIG.

TASK #6

#14 63FR 50954

Sincerely yours,

Craig R. Bolt

C. R. Bolt
Assistant Chair, TAEIG

Copy: Kris Carpenter, FAA - NWR
*Effie Upshaw, FAA - ARM-209
*Frederick A. Lewis-Smith - Boeing

*letter only

crb003_060100

ANM-98-479-A

Recommendation

PPIHWG, Harmonization Proposal for FAR/JAR-25.1155
Reverse thrust and propeller pitch settings below the flight regime

1 - What is underlying safety issue addressed by the FAR/JAR? [Explain the underlying safety rationale for the requirement. Why does the requirement exist?]

This requirement is intended to make sure that flight crew are always required to perform a separate and distinct operation, whenever they displace the reverse thrust control from the forward thrust regime and the control for propeller pitch below the flight regime. For the majority of aircraft, this action, if performed in flight, could lead to a Hazardous or Catastrophic situation. Even for aircraft, which are approved for in-flight operation of the thrust reverser under FAR 25.933(a)(2), the provision introduced by §25.1155 enables the pilot to be aware, when the selection from forward to reverse thrust is made.

2 - What are the current FAR and JAR standards? [Reproduce the FAR and JAR rules text as indicated below.]

FAR 25.1155 and JAR 25.1155 standards are shown below:

> **§25.1155 Reverse thrust and propeller pitch settings below the flight regime.**
> Each control for reverse thrust and for propeller pitch settings below the flight regime must have means to prevent its inadvertent operation. The means must have a positive lock or stop at the flight idle position and must require a separate and distinct operation by the crew to displace the control from the flight regime (forward thrust regime for turbojet powered airplanes).

> **JAR 25.1155 Reverse thrust and propeller pitch settings below the flight regime**
> Each control for reverse thrust and for propeller pitch settings below the flight regime must have means to prevent its inadvertent operation. The means must have a positive lock or stop at the flight idle position and must require a separate and distinct operation by the crew to displace the control from the flight regime (forward thrust engine regime for turbo-jet powered aeroplanes).

3 - What are the differences in the standards and what do these differences result in?: [Explain the differences in the standards, and what these differences result in relative to (as applicable) design features/capability, safety margins, cost, stringency, etc.]

The regulations are identical. There is no existing advisory material on this subject.

4 - What, if any, are the differences in the means of compliance? [Provide a brief explanation of any differences in the compliance criteria or methodology, including any differences in either criteria, methodology, or application that result in a difference in stringency between the standards.]

There is no documented variation in the interpretation of the existing requirement. However there have been two influences, which have shown that the existing §25.1155 requirement is not sufficient to control the potential hazards.

(i) There has been a number of accidents to turbo-propeller powered aircraft, where the instigating action has been a movement of the propeller pitch control to a position below the flight regime, when the aircraft was in flight. In these cases, the resulting effects on the engine/propeller

speed and/or the controllability of the aircraft, were sufficient to cause an accident. The accidents were found to have been caused by both deliberate and unintentional movements of the propeller pitch control to a position below the flight regime. Consequently the FAA have been implementing a policy, through Issue Papers, which requires turbo-propeller powered aircraft to incorporate a means to prevent any such movement of the propeller pitch control, when the aircraft is in flight.

(ii) During the work of the ARAC §25.933 Task Group, a Minority Position was raised on some thrust reverser design issues, including 'Prevention of Selection'. The Minority Position maintained that:

- there should be a requirement for the thrust reverser control to incorporate a means to prevent selection of reverse in flight.
- such a means to prevent selection of reverse thrust in flight is current design practice.
- this means would complement thrust reverser designs, which have Extremely Improbable in-flight deployment probability.
- safety benefits would also be realized for those aircraft, which were Certificated to be 'Controllable', following a thrust reverser deployment, by minimizing these events.
- increasing awareness of human factors issues is starting to influence aircraft design, by trying to eliminate those pilot actions, which could cause hazards.

5 – What is the proposed action? [Is the proposed action to harmonize on one of the two standards, a mixture of the two standards, propose a new standard, or to take some other action? Explain what action is being proposed (not the regulatory text, but the underlying rationale) and why that direction was chosen.]

As a result of the above two influences, Terms of Reference for an new ARAC Task were prepared by the Powerplant Installation Harmonization Working Group (PPIHWG) for a revision to §25.1155 to require: " ...means to prevent the flight crew of turbopropeller powered airplanes from inadvertently or intentionally placing the power lever below flight idle (beta operation) while in-flight, unless the airplane has been certified for in-flight beta operation. ... Discussion resulting from the work of the Powerplant Installation Harmonization Working Group's FAR/JAR 25.933 Task Team activity concluded that a similar command inhibition requirement would be prudent for turbojet thrust reverser systems which are intended only for use on the ground."

The PPIHWG set up the §25.1155 Task Group to work on the identified Task and they have prepared new Rule and Advisory Material (See Section 6 below).

6 - What should the harmonized standard be? [Insert the proposed text of the harmonized standard here]

The §25.1155 Task Group propose the following revision to the §25.1155 Rule.

§25.1155 Propeller pitch settings below the flight regime and reverse thrust .

Each control for selecting propeller pitch settings below the flight regime (reverse thrust for turbo-jet powered airplanes) must have:

(a) a positive lock or stop which requires a separate and distinct operation by the crew to displace the control from the flight regime (forward thrust regime for turbo-jet powered airplanes); it must only be possible to make this separate and distinct operation once the control has reached the Flight Idle position

(b) a means to prevent both inadvertent and intentional selection or activation of propeller pitch settings below the flight regime (thrust reversal for turbo-jet powered airplanes) when out of the

approved in-flight operating envelope for that function; and override of that means shall be prohibited;

(c) a reliability, such that the loss of the means required by section (b) above shall be remote;

(d) a caution to the crew when the means required by section (b) above is lost;

(e) a caution to the crew when a cockpit control is displaced from the flight regime (forward thrust regime for turbo-jet powered airplanes) into a position to select propeller pitch settings below the flight regime (reverse thrust for turbo-jet powered airplanes) outside the approved in-flight operating envelope. This caution need not be provided if the means required by section (b) is a mechanical baulk preventing movement of the control.

Even though not included in the rule, it is the intent that the caution required by (d) above need not be required if the loss of the means is extremely remote. The intent is that this should be addressed in the NPRM.

7 - How does this proposed standard address the underlying safety issue (identified under #1)? [Explain how the proposed standard ensures that the underlying safety issue is taken care of.]

The revised rule retains the intent of the existing rule and adds a requirement for additional means for preventing the flight crew from making a selection, which could hazard the aircraft.

8 - Relative to the current FAR, does the proposed standard increase, decrease, or maintain the same level of safety? Explain. [Explain how each element of the proposed change to the standards affects the level of safety relative to the current FAR. It is possible that some portions of the proposal may reduce the level of safety even though the proposal as a whole may increase the level of safety.]

The new rule improves the required level of safety for turbo-propeller powered aircraft, by eliminating the possibility of one flight crew selection error, which can lead to a hazardous situation in flight. Although, in principle, the provision of a system to meet the revised rule could reduce the probability that the required low pitch is available for the landing rollout, there has been no suggestion that this will reduce safety. With careful design, the safety objectives for both the flight and ground operational phases should be capable of being met.

For turbo-jet powered aircraft, the new rule also improves the required level of safety, by eliminating the possibility of a flight crew selection error, which can lead to a hazardous situation in flight.

Considerable discussion was given to an override system, where the flight crew could deactivate the inhibiting system required by 25.1155(b) outside the approved in-flight operating envelope for that function. The concern was whether the requirement for the inhibiting system would have a significant effect on the frequency of not having reverse thrust available on landing rollout. It is this group's opinion that a well designed system would not have this adverse effect, and therefore, the override system would be of little benefit. Moreover, an override system allows the flight crew to defeat the very safeguards included in the rule. For these reasons such a function is considered undesirable.

9 - Relative to current industry practice, does the proposed standard increase, decrease, or maintain the same level of safety? Explain. [Since industry practice may be different than what is required by the FAR (e.g., general industry practice may be more restrictive), explain how each element of the proposed change to the standards affects the level of safety relative to

current industry practice. Explain whether current industry practice is in compliance with the proposed standard.]

Following the application of the FAA Turbo-propeller Reversing System Issue Paper, many of the turbo-propeller powered aircraft Certificated in the past 10 years, have been required to fit a means to prevent selection of propeller pitch settings below the flight regime. For these aircraft, the required level of safety will be maintained.

For turbo-jet powered aircraft, the new rule confirms that the existing design practice of providing a means to prevent selection of reverse thrust in the air, is the required minimum standard.

10 - What other options have been considered and why were they not selected?: [Explain what other options were considered, and why they were not selected (e.g., cost/benefit, unacceptable decrease in the level of safety, lack of consensus, etc.]

No other materially different options have been identified or discussed

11 - Who would be affected by the proposed change? [Identify the parties that would be materially affected by the rule change – airplane manufacturers, airplane operators, etc.]

Applicants for new, amended or supplemental Type Certificates, which typically include manufacturers and modifiers.

12 - To ensure harmonization, what current advisory material (e.g., ACJ, AMJ, AC, policy letters) needs to be included in the rule text or preamble? [Does the existing advisory material include substantive requirements that should be contained in the regulation? This may occur because the regulation itself is vague, or if the advisory material is interpreted as providing the only acceptable means of compliance.]

The development of the new Rule and its Advisory Material has been carried out with the intention of retaining the proper division between the 'mandatory' element of rule-making and the 'advisory' element of AC/ACJ material. It is the Task Group's intention that the AC/ACJ material will be one means but not the only means of showing compliance.

13 - Is existing FAA advisory material adequate? If not, what advisory material should be adopted? [Indicate whether the existing advisory material (if any) is adequate. If the current advisory material is not adequate, indicate whether the existing material should be revised, or new material provided. Also, either insert the text of the proposed advisory material here, or summarize the information it will contain, and indicate what form it will be in (e.g., Advisory Circular, policy, Order, etc.)]

New AC/ACJ material (attached below) has been prepared to advise aircraft manufacturers and suppliers about acceptable means of compliance. This advice relates to both the original part of the requirement, which specifies the need for a separate and distinct operation to displace the control from the flight regime and to the new part of the requirement, which specifies the new 'means to prevent selection'.

14 - How does the proposed standard compare to the current ICAO standard? [Indicate whether the proposed standard complies with or does not comply with the applicable ICAO standards (if any)]

ICAO Annex 8 does not specifically address the subject of reverse selection. However, this revised version of §25.1155 will assist in complying with ICAO Annex 8, Chapter 7:
"7.1.2 Compliance with engine and propeller limitations
The powerplant installation shall be so designed that the engines and propellers (if applicable) are capable of being used in the anticipated operating conditions. In conditions established in the aeroplane flight manual the aeroplane shall be capable of operating without exceeding the limitations established for the engines and propellers in accordance with Chapters 5, 6 and 7."

Extract from ICAO Chapter 7.

15 - Does the proposed standard affect other HWGs? [Indicate whether the proposed standard should be reviewed by other harmonization working groups and why.]

There is no direct effect on other HWGs, but as this proposal affects the operation of flight deck controls and displays, this proposal will be of interest to the Flight Test Harmonization Working Group.

16 - What is the cost impact of complying with the proposed standard? [Is the overall cost impact likely to be significant, and will the costs be higher or lower? Include any cost savings that would result from complying with one harmonized rule instead of the two existing standards. Explain what items affect the cost of complying with the proposed standard relative to the cost of complying with the current standard.]

There will be an increased, but likely not significant, cost in airplane development.

17 - Does the HWG want to review the draft NPRM at "Phase 4" prior to publication in the Federal Register?

Yes.

18 – In light of the information provided in this report, does the HWG consider that the "Fast Track" process is appropriate for this rulemaking project, or is the project too complex or controversial for the Fast Track Process. Explain. [A negative answer to this question will prompt the FAA to pull the project out of the Fast Track process and forward the issues to the FAA's Rulemaking Management Council for consideration as a "significant" project.]

The §25.1155 Task Group consider that they have completed the task, as identified in the Terms of Reference. In preparing this rule proposal, account has been taken of the various thoughts and opinions expressed within the Task Group, about the benefits and consequences of its adoption. The completion of this harmonization task is appropriate for the fast track process and should be adopted.

U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: Propeller pitch settings below the flight regime and reverse thrust.	Date: 04/18/00 (DRAFT) Initiated By: ANM-112	AC No: 25.1155X Change: Draft

1. PURPOSE. This advisory circular provides guidance for demonstrating compliance with the certification requirement relating to controls which regulate reverse thrust or propeller pitch settings below the flight regime on transport category airplanes. The Federal Aviation Administration will consider other methods of demonstrating compliance that an applicant may elect to present. This material is neither mandatory nor regulatory in nature and does not constitute a regulation.

2. RELATED DOCUMENTS.

a. Federal Aviation Regulations. Sections which prescribe requirements for the design, substantiation, and certification relating to the control of reverse thrust and propeller pitch settings below the flight regime of transport category airplanes include:

§25.777	Cockpit Controls.
§25.779	Motion and effect of cockpit controls
§25.781	Cockpit control knob shape
§25.901	Installation
§25.903	Engines
§25.933	Reversing systems
§25.1141	Powerplant controls: General
§25.1143	Engine controls
§25.1149	Propeller speed and pitch controls
§25.1155	Reverse thrust and propeller pitch settings below the flight regime
§25.1305	Powerplant instruments
§25.1309	Equipment, systems, and installations.
§25.1322	Warning, caution, and advisory lights
§25.1337	Powerplant instruments

b. Advisory Circulars (AC). The advisory circulars listed below may be obtained from the U.S. Department of Transportation, Subsequent Distribution Office, SVC-121.23, Ardmore East Business Center, 3341 Q 75th Avenue, Landover, MD 20785.

AC 25-901X	Safety Assessment of Powerplant Installations
AC 25-933X	Unwanted In-flight Thrust Reversal of Turbojet Thrust Reversers
AC25-1309XX	System Design and Analysis

3. APPLICABILITY.

The basic provisions of 25.1155 require that the control for selecting reverse thrust (propeller pitch settings below the flight regime) have a positive lock or stop at the flight idle position as well as separate and distinct operation by the flight crew to displace the control from the in-flight regime. These basic provisions are applicable to all transport category airplanes. The specific provisions of §25.1155 are applicable to the control system protecting against the intentional or the inadvertent in-flight selection of the thrust reverser for turbojet powered airplanes or propeller operation at pitch settings below the flight regime for turboprop powered airplanes. Further, the referenced requirement would not be applicable to a turbojet powered airplane whose reverser was certified for in-flight use or to a turbo-propeller powered airplane whose propellers were certified for pitch settings below the normal in-flight operating regime.

In addition to the 25.1155 applicability limitations noted above, the intentional selection provisions should not be interpreted to include a pilot who knowingly gains in-flight access to the prohibited engine control regime by :
a) disabling a protective control system (i.e. throttle balk or warning) by pulling circuit breaker, or
b) ignoring a clearly annunciated protective control system failure warning or caution message.

4. BACKGROUND.

a. Requirement History:

The requirements to guard against inadvertent operation of both cockpit mounted propeller and turbojet reverse control lever(s) date back to CAR 4b (4b.474a). When part 25 was codified in 1965, only the turbojet reverse section of the subject requirement was retained as FAR §25.1155. In 1967, Amendment 25-11 broadened §25.1155 to once again include protection against inadvertent in-flight operation of thrust reversers and propeller pitch settings below the flight regime. This Amendment required the cockpit propeller control to incorporate positive locks or stops at the flight idle position, and further specified that the control means must require a separate and distinct operation by the crew, in order to displace the propeller control from the flight regime.

b. Operational Experience - Turbo-propeller powered Airplanes:

In-service experience during the late 1980s and 1990s of some turbo-propeller powered transport category airplanes, has shown that intentional or inadvertent in-flight operation of the propeller control systems below flight idle has produced two types of hazardous, and in some cases, catastrophic conditions:

(i) Permanent engine damage and total loss of thrust on all engines when the propellers that were operating below the flight regime drove the engines to over-speed, and;
(ii) Loss of airplane control because at least one propeller operated below the flight regime during flight creating asymmetric control conditions.

As a result of this unsatisfactory service experience, in-flight beta lockout systems were retroactively required (via Airworthiness Directives) on several transport category turboprop airplanes. These beta lock-out systems were required only after it was determined that increased crew training, installation of cockpit placards warning crews not to use beta in flight, and stronger wording in AFM warnings

and limitations did not preclude additional in-flight beta events.

In addition to the continued airworthiness issues noted above the FAA also recognized the need to update the FAR requirement to require some form. Until the rule changes noted above are complete, the FAA is using the no unsafe feature or characteristic provisions of 21.21(b)(2) to require installation of beta lockout systems on new transport category turbo-propeller powered airplanes.

Intentional selection of beta mode/reverse in flight for rapid aircraft deceleration was not specifically addressed by this regulation. Also, FAR 25.933(b) had been interpreted as not requiring, for turbo-propeller aircraft, an interlock or other automatic device to prohibit movement of the power lever by the flight crew below the flight idle stop when the aircraft is in flight.

Consequently, initial FAA certification of transport category turbo-propeller aircraft has not required an in-flight beta lockout device to prevent intentional selection of the beta mode/reverse in flight.

As a result of these incidents and accidents, Amendment 25-xx was published in 200X, which required that a means to prevent both inadvertent and intentional in-flight selection of reverse thrust or propeller pitch settings below the regime, unless of course the airplane was certified for such operation.

Typical beta lockout systems currently use wheel spin-up, squat switch activation, gear-up switch activation, or combinations of these. Certain airplanes, especially those with low wings and without ground spoilers, have a tendency to float during landing. In the case of these airplanes, the application of beta may be delayed on a wet runway because, while the airplane is floating, the ground logic or the wheel spin-up may not activate immediately.

Landing performance of turbo-propeller-powered airplanes is based on ground idle availability, which is part of the beta range. Turbo-propeller-powered airplanes landing on field length-limited runways with delayed beta application present a potential hazard. Overruns are more likely to occur if operating under part 91 (un-factored field lengths); however, the risks are also present if operating under parts 121 or 135 (factored field lengths) on a wet runway. Paragraph (b) of the rule prohibits override, however, there are several acceptable methods that may be used to overcome the deficiencies of the squat switch or wheel spin-up logic alone, such as the use of a radar altimeter or multiple air/ground logic inputs.

c. Operational Experience - Turbo-jet (Turbo-fan) Powered Airplanes.

For turbojet (turbofan) thrust reversers, there has not been such a bad accident experience of pilot initiated thrust reverser deployment as for the turbo-propeller airplanes, but they have occurred. There has also been a number of reported cases, where the thrust reversers have been selected before touch down, in order to minimize the landing roll. In these cases, the provision of a weight-on-wheels (WOW) interlock as part of the thrust reverser design, prevented the deployment of the reverser. However, the basic concern about the need to avoid a reversing condition, outside any approved operating regime, is the same for a thrust reverser equipped aircraft, as it is for a propeller powered aircraft i.e. the prevention of Catastrophic failure conditions.

§25.933(a) and its AC / ACJ describe means by which the thrust reverser system can be shown to have sufficient system integrity, to meet the required Safety Objectives. If the reliability method of compliance with §25.933(a) is used, the probability of an unwanted reverser deployment in flight will be shown to be <1E-09. In this case, where very low probabilities of system failures are demonstrated,

it was considered to be inappropriate that a single event of pilot selection could cause the same effect, - a reverser deployment. Recognition that occurrences of thrust reverser selection in flight have occurred, reinforced by the growing perception that human factors need to be considered, has resulted in thrust reverser controls being considered equally. This approach ensures consistency in the application of §25.1155 to both turbo-prop and turbo-jet (turbo-fan) reversing systems.

The design objective sought by §25.1155 has been a common design practice for many turbo-jet (turbofan) thrust reverser designs. This rule establishes that a means to prevent crew selection or activation of reverse thrust or propeller pitch settings below the flight regime must be provided, as the minimum required standard.

d. Override Systems:

Historically, some turbo-propeller systems have been provided with an override capability, such that on landing, if the selection of pitch below flight idle is not successful - because of system failures or because signals used in the system may not have transitioned to the ground mode - the flight crew could select the override function to enable use of pitch below flight idle during ground operation. As mentioned above, many turbo-jet (turbofan) powered airplanes equipped with thrust reversers have utilized weight-on-wheels, or other air-ground logic, to prevent selection or activation of thrust reversers in flight. Generally, these systems have been capable of successful operation, despite not being equipped with any form of over-ride. It is the intention of the revised version of §25.1155 to prevent any selection or activation of propeller pitch below the flight regime or reverse thrust in flight. The provision of any override, which would allow selection or activation of propeller pitch below the flight regime or reverse thrust out the approved in flight envelope for that function would not comply with the §25.1155. The design of the system to show compliance with §25.1155 will need to take into account the Safety Objectives associated with the maintenance of the required landing performance.

5. DEFINITIONS.

5.a Approved in-flight operating envelope:
An area of the Normal Flight Envelope where a function has been accepted as suitable by the Authorities

5.b Catastrophic:
see AC 25.1309X

5.c Continued Safe Flight and Landing:
see AC 25.1309X

5.d Failure:
see AC 25.1309X

5.e Flight idle position:
the position of thrust/power lever corresponding to the minimum forward thrust, power or pitch setting authorized in flight

5.f Inadvertent:
action performed by the pilot who did not mean to do it

5.g In-flight:
that part of airplane operation beginning when the wheels are no longer in contact with the

ground during the takeoff and ending when the wheels again contact the ground during landing.

5.h Intentional:
action performed by the pilot who meant to do it

5.i Propeller pitch control system:
all those system components which enable the flight crew to command and control propeller pitch

5.j Remote:
see
AC 25.1309X

5.k Reverse control system:
all those system components which enable the flight crew to command and control the thrust reverser

5.l Separate and distinct:
more than or in addition to a continuation of motion required for movement and obvious to each member of the flight crew

5.m Thrust Reversal:
A movement of all or part of the thrust reverser from the forward thrust position to a position that spoils or redirects the engine airflow.

5.n Turbojet (or turbofan):
A gas turbine engine in which propulsive thrust is developed by the reaction of gases being directed through a nozzle.

5.o Turbo-propeller:
A gas turbine engine in which propulsive thrust is developed by the propeller

6. COMPLIANCE with §25.1155.

a) Cockpit controls

The cockpit controls mean the control devices used by the crew to select the reverse thrust or the propeller pitch below the flight regime. (See FAR/JAR 25.1141, 25.1143 and 25.1149)
Cockpit controls design must be adequate to permit the crew to perform the handling of the aircraft and to follow the procedures as per AFM, while mitigating crew errors.

b) Preventative means

Acceptable means to prevent intentional or inadvertent selection or activation of reverse thrust or propeller pitch below the flight regime' can be:
1) Devices to prevent movement of the cockpit control which prevents selection, or
2) Logic in the Thrust Reverser or Propeller Control which prevents activation.

c) Separate and distinct

To move cockpit controls from the Flight Idle position must require a separate and distinct operation of the control to pass from the Flight Idle position to positions approved only for ground operation.

The control must also have features to prevent inadvertent movement of the control through the Flight Idle position. It must only be possible to make this separate and distinct operation once the control has reached the Flight Idle position.

Separate and distinct is more than or in addition to a continuation of motion required for movement to the Flight Idle setting and must be obvious to the flight crew.

Examples of separate and distinct controls that have been used in previous designs are as follows:

i) Physically separate forward/reverse[below flight idle] control levers or mechanisms.

ii) Manually actuated latches located on or in the vicinity of the control that can not be actuated until Flight Idle.

iii) A required change in direction of operation of the control from that needed for movement to Flight Idle.

Examples of separate and distinct control operation, which would not be acceptable include:

i) a separate operation, which can be activated away from the Flight Idle position, so that movement of the control from forward thrust to below the flight regime or thrust reversal can be accomplished with a single action.

ii) any separate operation, where latches or equivalent devices can be pre-loaded by the pilot so that a single movement of the control, enables movement below flight idle.

iii) any control arrangement, where it can be ascertained that normal wear and tear could cause the separate and distinct action to be lost.

d) Cockpit indications

The overall indication requirements for Thrust Reverser Control System and Propeller Pitch Control System are given in the FAR/JAR 25.933, 25.1305(d)(2), 25.1309(c), 25.1322, and 25.1337(e) paragraphs and their associated AC/ACJs. The following text adds some specific guidance with respect to the requirements of paragraph 25.1155(d) and (e).

Sub-paragraphs "(d)" and "(e)" of the rule require crew cautions to be provided for two conditions:

"(d)" when the means 'to prevent both inadvertent and intentional selection of propeller pitch settings below the flight regime (thrust reversal for turbo-jet powered airplanes) when out of the approved in-flight operating envelope for that function' is lost. The purpose of this caution is to inform the flight crew that a fault has occurred to the propeller pitch control system or the thrust reverser control system, so that the protection means is no longer available and any movement of the control below the flight regime (forward thrust regime) may cause a low pitch/high drag condition or thrust reverser deployment. With this information, the flight crew will be able to take appropriate precautions, as advised by approved Manuals and reinforced by their training, to minimize the possibility of a hazardous condition. Without this caution, a fault in the protection means could allow an unsafe condition to occur, whereby any inadvertent or intentional movement of the control below the flight regime could cause a hazardous low pitch or reverse thrust condition.

"(e)" when the cockpit control is displaced from the flight regime (forward thrust for turbo-jet powered airplanes) into a position to select propeller pitch settings below the flight regime (thrust reversal for turbo-jet powered airplanes) and the airplane is outside the approved in-flight operating envelope for that function. On some anticipated system designs, the pilot will have the ability to move the cockpit control below the flight regime (into thrust reverse for turbo-jet powered airplanes) with no restriction, other than the 'separate and distinct operation' required by § 25.1155(a). For this type

of design, the means to prevent propeller pitch settings below the flight regime (reverse thrust for turbo-jet powered airplanes) when out of the approved in-flight operating envelope for that function will be a part of the propeller pitch control system or the thrust reverser system. Whilst there is no immediate hazard at that point, the control is not in the proper position for flight operations and the flight crew need to be made aware of that situation, so that they can take the appropriate action. In some of the accidents, where the control had been moved into the 'below flight ' regime, it was not clear whether this control movement had been inadvertent or intentional. Provision of this caution will give the crew a clear indication of any incorrect placement of the control however the control was positioned. For any design, where there is approval for selection of propeller pitch settings below the flight regime (reverse thrust for turbo-jet powered airplanes), there will be no need to provide this caution when the aircraft is in the approved in-flight operating envelope for that function. Also, as made clear in § 25.1155(e), there is no requirement to provide any caution for control movement, when on the ground.

e) Reliability considerations

The intention of § 25.1155(b) is for the aircraft design to include a means to prevent the flight crew selecting (or activating) propeller pitch settings below the flight regime or reverser deployment, when the aircraft is not in the approved in-flight operating envelope for that function. The introduction of the rule stems directly from a number of cases, where such a selection has caused accidents. Because of a large variability in the current perception of the future occurrence rate for this type of flight crew error, a target reliability level for the prevention means is included in the rule, see §25.1155(c). This level of reliability is expected to give a high degree of protection from the unwanted selection or activation of low propeller pitch or reverser deployment. The provision of the cautions should provide the necessary safeguard, on the few occasions when the prevention means fails. Additionally, this target safety level should not be inconsistent with the required availability of the reversing function for landing performance.
The safety assessment methods established by § 25.901(c) and §25.1309(b) are appropriate for the determination of the reliability level required by §25.1155(c) and for assessing the effects of any other failure conditions or malfunctions.

f) Reverser/pitch below flight regime availability on ground

Landing or Aborted take-off distances on wet runways usually take credit for the braking effect created by reverse thrust or propeller pitch below flight idle. Therefore availability of these systems when in the approved operating envelope must be maintained.
It must therefore be shown that failures in the system provided to meet §25.1155(b) do not degrade significantly the availability of the reverse thrust or low pitch selection on ground.

7. INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

7.a. Manufacturing/Quality: Due to the criticality of the reverse thrust function or pitch below flight regime function, manufacturing and quality assurance processes should be assessed and implemented, as appropriate, to ensure the design integrity of the critical components.

7.b. Maintenance and Alterations: reference to § 25.901(b)(2) and § 25.1529/Appendix H. The criticality of the control system requires that maintenance and maintainability be emphasized in the design process and derivation of the maintenance control program, as well as subsequent field maintenance, repairs, or alterations.

7.c. Manuals- Limitations/Procedures:

Prohibition of use of reverse thrust or pitch settings below the flight regime when outside the approved in-flight operating envelope for that function should be introduced in AFM.

Cautions as described in 1155(d) and (e) and their related procedures should be included in the Operations Manual.

copy to McRae - kel

Pratt & Whitney
400 Main Street
East Hartford, CT 06108

Pratt & Whitney
A United Technologies Company

March 8, 2000

Department of Transportation
Federal Aviation Administration
800 Independence Avenue S. W.
Washington, DC 20591

Attention: Anthony Fazio, ARM – 1

Reference: TAEIG letter to FAA, dated 1/17/00

Dear Tony:

The reference letter transmitted a Powerplant Installation Harmonization Working Group report addressing 25.903(e), In-flight Starting. The January 17, 2000 letter inadvertently contained an earlier version of the PPIHWG report and a corrected copy is attached.

We apologize for this error.

Sincerely yours,

C. Bolt

Craig R. Bolt
Assistant Chair, TAEIG
Telephone: 860-565-9348
Fax: 860-557-2277

Cc: *Dorenda Baker – FAA – NWR
Kristin Larson – FAA – NWR
*Phil Salle – Boeing
Effie Upshaw – FAA – ARM

*Letter only

GE Aircraft Engines
Flight Safety Office
Sarah Knife,
Senior Staff Engineer – Industry & Regulatory affairs
General Electric Company
One Neumann Way Cincinnati Ohio 45215
Mail Drop J60
Phone (513) 243 3032
Fax (513) 243 0164

Subject: PPIHWG Report on 25.903(e) - Inflight Starting

Date: January 25 2000

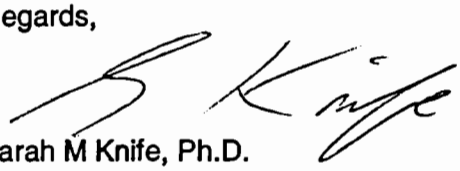
to: C Bolt cc Task Group

Sir

It has become apparent that the package of reports sent to TAEIG included an obsolete version of the report on in-flight starting. Since this obsolete report contains several factually incorrect statements, I have been requested by the PPIHWG chair, GP Sallee, to forward you the correct report for submission to the FAA.

The attachments submitted should remain unchanged; only the summary report was incorrect. Many thanks for your assistance.

Regards,



Sarah M Knife, Ph.D.
Senior Staff Engineer – Industry & Regulatory Affairs
GEAE Flight Safety Office

9/99

~~8/16/99~~

DRAFT

PPIHWG Report on 25.903(e) – Inflight Starting

1. What is the underlying safety issue addressed by FAR/JAR? *[Explain the underlying safety rationale for the requirement. Why does the requirement exist?]*

The total loss of all propulsive power, malfunction of all engines installed on an airplane, for environmental, human error and other causes has occurred. The actual capability to inflight restart one or more engines, after all engine flameout or are shutdown, has provided the capability to avoid forced landings and the potential for severe consequences. However, engine certification standards are silent on a requirement to demonstrate a minimum inflight engine re-starting capability. The airplane certification requirements, whilst requiring that an inflight re-starting capability be demonstrated, do not establish a minimum standard for the required capability in terms of altitude, altitude loss and airspeed range given all engines have been lost. Lack of an explicitly defined inflight re-starting minimum safety standard has resulted in wide variation in the inflight engine re-starting capabilities. Some turbine engine types have no inflight windmilling re-starting capability at all and alternate means for inflight re-starting have been required under special condition. This regulatory proposal present in this Report is to amend the regulation to clearly address the all engine out failure condition and provide a minimum inflight re-starting capability to be achieved and a means to demonstrate compliance by the addition of a new rule and associated advisory material.

2. What are the current FAR and JAR standards? [*Reproduce the FAR and JAR rules text as indicated below.*]

"FAR part 25.903(e)
Restarting capability. (1) Means to restart any engine in flight must be provided (2) An altitude and airspeed envelope must be established for in-flight engine restarting, and each engine must have a restart capability within that envelope. (3) For turbine engines powered airplanes, if the minimum windmilling speed of the engine following the inflight shutdown of all engines, is insufficient to provide the necessary electrical power for engine ignition, a power source independent of the engine-driven electrical power generating system must be provided to permit in-flight engine ignition for restarting."

JAR 25.903(e) is identical to the FAR wording except for a reference to ACJ 25.903(e)(2) in the second subparagraph.

This Report proposes to adds a new 25.903(e)(4) requirement and associated Advisory Material.

3. What are the differences in the standards and what do these differences result in?

[*Explain the differences in the standards, and what the differences result in relative to (as applicable) design features/capability, safety margins, cost, stringency, etc.*]

The are no differences in the stated standard as shown in #2 above. Both standards do not adequately describe the minimum inflight restarting envelope of airspeed and altitude standard to be demonstrated given an all engines out situation (and no capability to use starter assist using pneumatic power from other engines on the airplane). Further the current standards do not provide a performance standard to be achieved with respect to altitude loss during the inflight re-start.

4. What, if any, are the differences in the means of compliance? [*Provide a brief explanation of any differences in the compliance criteria or methodology, including any differences in either criteria, methodology, or application that result in a difference in stringency between the standards.*]

The ACJ to the existing JAR stipulates that there be an airspeed range of at least 30 kt for windmill restart, and that the effect of delay between engine shutdown and restart be assessed (for 2 minute and 15 minute delays). The FAR AC does not include this material. A proposed means of compliance is provided in the associated Proposed AC.

5. What is the proposed action? [*Is the proposed action to harmonize on one of the two standards, a mixture of the two standards, propose a new standard, or to take some other action? Explain what action is being proposed (not the regulatory text, but the underlying rationale) and why that direction was chosen.*]

The proposed action is to establish a new rule and means of compliance which directly deal with the perceived safety concern.

6. What should the harmonized standard be? [*Insert the proposed Text of the harmonized standard here.*]

See attachments – draft NPRM, rule and advisory material.

7. How does this proposed standard address the underlying safety issues (identified under #1? [*Explain how the proposed standard ensures that the underlying safety issue is taken care of.*]

The proposed rule requires that the "all engine out failure conditions" be addressed under four critical conditions likely to be encountered in service. Performance based success criteria concerning altitude loss during inflight re-starting is described. Additionally, the entry conditions for each in-flight restarting demonstration are defined. Given the airplane is demonstrated to have this engine restarting capability the safety objective, of maximizing the potential for successful restart of one or more engines will be achieved.

8. Relative to the current FAR, does the proposal increase, decrease or maintain the same level of safety? Explain. [*Explain how each element of the proposed change to the standard affects the level of safety relative to the FAR. It is possible that some portions of the proposal may reduce the level of safety even though the proposal as a whole may increase the level of safety.*]

Adoption of the proposal will increase safety relative to the current rule And will provide more stringent requirements than the current Generic Special Condition which is currently issued against all new airplane types for this safety concern.

9. Relative to current industry practice, does the proposed standard increase, decrease, or maintain the same level of safety? Explain. [*Since industry practice may be different that what is required by the FAR (e.g., general industry practice may be more restrictive), explain how each element of the proposed change to the standards affects the level of safety relative to current industry practice. Explain whether current industry practice is in compliance with the proposed standard.*]

.The proposed standard provides more stringent requirements than current industry practice. Specifically, it imposes a maximum altitude loss for the restart from low-altitude, high power condition – this altitude loss requirement does not appear in the current generic special condition. Also, it requires a windmill restart capability at a lower airspeed than required by the Special Condition for the low altitude, low power case – 250 kts rather than 300 kts.

10. What other options have been considered and why were they not selected? [*Explain what other options were considered and why they were not selected (e.g., cost/benefit, unacceptable decrease in the level of safety, lack of consensus, etc.)*]

The proposal was developed at the request of the FAA to AIA as a AIA/AECMA activity/project. The completion of this Industry Project led to a petition for rule making. The current proposal makes use of the AIA/AECMA proposal amended to incorporate some JAA and JAA-PPSG (Powerplant Study Group) comments. Two other approaches were considered:

a. *Constructing the new requirement to minimize the overall hazard, by taking into account the propulsion system features which would reduce the likelihood of experiencing an all-engine out event (rather than assuming the all-engine out event, and constructing the requirement to address recovery of the aircraft).*
b. *Constructing the new requirements to address only those portions of the flight envelope where industry-wide service experience shows there is a significant risk of an all-*

engine out event.

These approaches were not pursued due to lack of consensus.

11. Who would be affected by the proposed change?[*Identify the parties that would be materially affected by the rule change – airplane manufacturers, airplane operators, etc.*]

Airplane manufacturers, STC applicants for installation of a different engine type on an airplane, and engine manufacturers.

12. To insure harmonization, what current advisory material (e.g., ACJ, AMJ, AC, policy letters) needs to be included in the rule text or preamble? [*Does the existing advisory material include substantive requirements that should be contained in the regulation? This may occur because the regulation itself is vague, or if the advisory material is interpreted as providing the only acceptable means of compliance.*]

None. The added rule and supporting AC/J require no other changes. However, the preamble to the rule should clearly define that the AC contains interpretative material intended to establish the minimum safety standard.

13. Is the existing FAA advisory material adequate? If not, what advisory material should be adopted? [*Indicate whether the existing advisory material (if any) is adequate. If the current advisory material is not adequate, indicate whether the existing material should be revised, or new material provided. Also, either insert the text of the proposed advisory material here, or summarize the information it will contain, and indicate what form it will be in (e.g., Advisory Circular, policy, Order, etc.)*]

Not applicable – The new rule and advisory material are additive and do not interfere.

14. How does the proposed standard compare to current ICAO standard? [*Indicate whether the proposed standard complies with or does not comply with the applicable ICAO standards (if any).*]

Help! FAA/JAA to answer.

15. Does the proposed standard affect other HWG's? [*Indicate whether the proposed standard should be reviewed by other harmonization working groups and why.*]

The EHWG should review this proposal, since it is likely to impact the designs of future engines.

16. What is the cost impact of complying with the proposed standard? [*Is the overall cost impact likely to be significant, and will the cost be higher or lower? Include any cost savings that would result from complying with one harmonized rule instead of the two existing standards. Explain what items affect the cost of complying with the proposed standard relative to the cost of complying with the current standard.*]

Additional cost is likely to be incurred by complying with those requirements which are more stringent than those of the Special Condition.

17. Does the HWG want to review the draft NPRM at "Phase 4" prior to publication in the Federal Register?

Yes.

18. In light of the information provided in this report, does the HWG consider that the "Fast Track" process is appropriate for this rule making project, or is the project too complex or controversial for the Fast Track Process. Explain? Explain. [A negative answer to this question will prompt the FAA to pull the project out of the Fast Track Process and forward the issues to the FAA's Rulemaking Management Council for consideration as a "significant "project.]

. *Yes*

FAA Action

{AE1}

Mr. Ron Priddy
President, Operations
National Air Carrier Association
1100 Wilson Blvd., Suite 1700
Arlington, VA 22209

Dear Mr. Priddy:

The Federal Aviation Administration (FAA) recently completed a regulatory program review. That review focused on prioritizing rulemaking initiatives to more efficiently and effectively use limited industry and regulatory rulemaking resources. The review resulted in an internal Regulation and Certification Rulemaking Priority List that will guide our rulemaking activities, including the tasking of initiatives to the Aviation Rulemaking Advisory Committee (ARAC). Part of the review determined if some rulemaking initiatives could be addressed by other than regulatory means, and considered products of ARAC that have been or are about to be forwarded to us as recommendations.

The Regulatory Agenda will continue to be the vehicle the FAA uses to communicate its rulemaking program to the public and the U.S. government. However, the FAA also wanted to identify for ARAC those ARAC rulemaking initiatives it is considering to handle by alternative actions (see the attached list). At this time, we have not yet determined what those alternative actions may be. We also have not eliminated the possibility that some of these actions in the future could be addressed through rulemaking when resources are available.

If you have any questions, please feel free to contact Gerri Robinson at (202) 267-9678 or gerri.robinson@faa.gov.

Sincerely,

Anthony F. Fazio
Executive Director, Aviation Rulemaking Advisory Committee

Enclosure

cc:
William W. Edmunds, Air Carrier Operation Issues
Sarah MacLeod, Air Carrier/General Aviation Maintenance Issues
James L. Crook, Air Traffic Issues
William H. Schultz, Aircraft Certification Procedures Issues
Ian Redhead, Airport Certification Issues

Billy Glover, Occupant Safety Issues
John Tigue, General Aviation Certification and Operations Issues
David Hilton, Noise Certification Issues
John Swihart, Rotorcraft Issues
Roland B. Liddell, Training and Qualification Issues
Craig Bolt, Transport Airplane and Engine Issues

ARAC Projects that will be handled by Alternative Actions rather than Rulemaking

(Beta) Reverse Thrust and propeller Pitch Setting below the Flight Regime (25.1155)
Fire Protection (33.17)
Rotor Integrity--Overspeed (33.27)
Safety Analysis (33.75)
Rotor Integrity – Over-torque (33.84)
2 Minute/30 Second One Engine Inoperative (OEI) (33.XX)
Bird Strike (25.775, 25.571, 25.631)
Casting Factors (25.621)
Certification of New Propulsion Technologies on Part 23 Airplanes
Electrical and Electronic Engine Control Systems (33.28)
Fast Track Harmonization Project: Engine and APU Loads Conditions (25.361, 25.362)
Fire Protection of Engine Cowling (25.1193(e)(3))
Flight Loads Validation (25.301)
Fuel Vent System Fire Protection (Part 25 and Retrofit Rule for Part 121, 125, and 135)
Ground Gust Conditions (25.415)
Harmonization of Airworthiness Standards Flight Rules, Static Lateral-Directional Stability, and Speed Increase and Recovery Characteristics (25.107(e)(1)(iv), 25.177©, 25.253(a)(3)(4)(50)). Note: 25.107(a)(b)(d) were enveloping tasks also included in this project—They will be included in the enveloping NPRM)
Harmonization of Part 1 Definitions Fireproof and Fire Resistant (25.1)
Jet and High Performance Part 23 Airplanes
Load and Dynamics (Continuous Turbulence Loads) (25.302, 25.305, 25.341 (b), etc.)
Restart Capability (25.903(e))

Standardization of Improved Small Airplane Normal Category Stall Characteristics Requirements (23.777, 23.781, 23.1141, 23.1309, 23.1337, 25.1305)

ATTC (25.904/App I)
Cargo Compartment Fire Extinguishing or Suppression Systems (25.851(b), 25.855, 25.857)
Proof of Structure (25.307)
High Altitude Flight (25.365(d))
Fatigue and Damage Tolerance (25.571)
Material Prosperities (25.604)